

## PATENT COOPERATION TREATY

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## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference GPA 040113	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. PCT/IB2004/001302	International filing date (day/month/year) 18.03.2004	Priority date (day/month/year) 18.03.2003
International Patent Classification (IPC) or national classification and IPC H04L12/28, H04Q7/38		
Applicant BICHOT, Guillaume et al		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 5 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (Indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input checked="" type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand 28.03.2005	Date of completion of this report 05.07.2005	
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Wolf, W Telephone No. +49 89 2399-7930 	

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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

**Description, Pages**

1-22 as published

**Claims, Numbers**

1-20 received on 01.04.2005 with letter of 25.03.2005

**Drawings, Sheets**

1/8-8/8 as published

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	1-20
	No: Claims	
Inventive step (IS)	Yes: Claims	1-20
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-20
	No: Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

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**Box No. VI Certain documents cited**

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1. Certain published documents (Rule 70.10)

and / or

2. Non-written disclosures (Rule 70.9)

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

Reference is made to the following documents:

- D1: US 2002/012433 A1 (EKBERG JAN-ERIK G ET AL) 31 January 2002 (2002-01-31)
- D2: WO 03/094438 A (GREGORIO RODRIGUEZ JESUS ANGEL ; MONJAS LLORENTE MIGUEL ANGEL (ES); ER) 13 November 2003 (2003-11-13)
- D3: FR-A-2 842 055 (NORTEL NETWORKS LTD) 9 January 2004 (2004-01-09)
- D4: "Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; Requirements and Architectures for Interworking between HIPERLAN/2 and 3rd Generation Cellular systems; ETSI TR 101 957" ETSI STANDARDS, EUROPEAN TELECOMMUNICATIONS STANDARDS INSTITUTE, SOPHIA-ANTIPO, FR, vol. BR, no. V111, August 2001 (2001-08), XP014005038 ISSN: 0000-0001

The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document) *a method for establishing a signalling connection between a client terminal and a communication network* (D1: title, figure 2), *the method comprising the steps of:*

- *establishing an authentication connection between the client terminal and the communication network* (D1: figure 16, paragraph 342)
- *transmitting an authentication message from the communications network to the client terminal* (D1: paragraph 347, figure 16)

The subject-matter of claim 1 differs from this known method in that in claim 1 following the authentication message, there is a transmission of set up parameters in order to establish a control data signalling connection tunnel between the client terminal and the communication network. In D1, following the authentication process there is a transmission of a session key but this does not allow the set up of a tunnel that would require for instance the transmission of an address.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

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In claim 1, once the authentication has been made and the tunnel set up, the authentication protocol is closed. This allows the opening of a tunnel while the resources that have been used for the authentication are released (see description paragraph 38). The technical effect of the invention consists of optimising the use of the resource when a tunnel is opened after an authentication protocol is used. The problem to be solved by claim 1 with regard to D1 consists of realising the mentioned technical effect.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) because there is no indication to open a tunnel and to close the authentication protocol in any document of the prior art.

Independent claims 10 and 18 also meet the requirements of the PCT with respect to novelty and inventive step for the same reasons as claim 1.

Claims 1-9 (resp. 11-17, 19-20) are dependent on claim 1 (resp 10 and 18) and as such also meet the requirements of the PCT with respect to novelty and inventive step.

**Re Item VI**

**Certain documents cited**

Application No Patent No	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
WO-A-03 094438	13.11.2003	01.05.2002	01.05.2002
FR-A-2 842 055	09.01.2004	05.07.2002	05.07.2002

These documents are very relevant and could be used in regional phases.

**Re Item VIII**

**Certain observations on the international application**

1. To meet the requirements of Rule 5.1(a)(ii) PCT, D1 should have been identified in the description and the relevant background art disclosed therein should have been briefly discussed.

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2. To meet the requirements of Rule 6.3(b) PCT, the independent claims should have been **properly** cast in the **two-part form**, with those features which in combination are part of the prior art (see D1), being placed in the preamble.
3. In order to fulfil the requirements of Rule 5.1(a)(iii) PCT, the description should have been brought into conformity with the new claims.
4. The general statement "**incorporated herein by reference**" in page 1 lines 5-9 is not clear. Therefore, either a short acknowledgement of the relevant subject-matter of the corresponding document, to which said statement refers, should in accordance with Article 34(2)(b) PCT, have been added to the description, or, if said document is not relevant for the performance of the invention, such statement should have been deleted.
5. The application number for the application cited in page 10 line 5 should have been replaced by the corresponding publication number.
6. The reference sign 888 in page 14, line 11 appears in the description but not in the figures. This is in contradiction to Rule 11.13(l) PCT.

## CLAIMS

1. A method for establishing a signaling connection  
5 between a client terminal and a communications network, the  
method comprising the steps of:  
    establishing an authentication connection between the  
client terminal and the communications network;  
    transmitting an authentication message from the  
10 communications network to the client terminal;  
    transmitting set-up parameters from the  
communications network to the client terminal, the set-up  
parameters including information for establishing a signaling  
connection tunnel between the client terminal and the  
15 communications network for transferring control data;  
    establishing the control data signaling connection  
tunnel using the set-up parameters;  
    transmitting signaling information between the client  
terminal and the communications network via the control data  
20 signal connection tunnel; and  
    closing the authentication connection.
2. The method according to claim 1, further  
comprising the step of transmitting from the client terminal to  
25 the communications network acknowledgement of receipt of the  
set-up parameters.
3. The method according to claim 1, wherein the  
control data signal connection tunnel is a dedicated signaling  
30 tunnel.

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4. The method according to claim 1, wherein the client terminal is a mobile terminal and the communications network is a 3G network.

5. The method according to claim 1, wherein the step of establishing an authentication connection between the client terminal and the communications network is performed by way of a path including a wireless network which complies with IEEE 802.11 standards.

6. The method according to claim 1, wherein the step of establishing an authentication connection between the client terminal and the communications network includes the steps of establishing EAPOL and DIAMETER connections.

7. The method according to claim 1 wherein the control data signal connection tunnel is a general packet radio services (GPRS) tunneling protocol (GTP) tunnel, and the step of transmitting set-up parameters includes the step of transmitting at least one of an IP address and a tunnel ID.

8. The method according to claim 7 wherein the step of transmitting set-up parameters includes the step of transmitting QOS parameters.

9. The method according to claim 1 wherein the control data signaling connection tunnel is a dedicated GTP tunnel, and the step of transmitting set-up parameters includes the step of transmitting both an IP address and a tunnel ID.

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10. A method for implementing communications, said method comprising the steps of:

providing a wireless local area network access point having protocol stacks;

5 initially establishing an EAP/EAPOL connection by way of said wireless local area network access point between a mobile terminal and a cellular system server for the flow of authentication and control information including parameters for a control data signaling connection tunnel;

10 following authentication by said server, closing said EAP/EAPOL connection and opening a corresponding control data signaling connection tunnel using said parameters.

11. The method according to claim 10, wherein said 15 step of establishing an EAP/EAPOL connection includes the step of transmitting parameters for a GTP tunnel; and

said step of opening a control data signaling connection tunnel includes the step of opening a GTP tunnel.

20 12. The method according to claim 10, wherein said step of closing said EAP/EAPOL path is performed after said control data signaling connection tunnel is opened.

25 13. The method according to claim 10, comprising the further step, following authentication by said server, of transmitting authorization to said access point to pass user data for said mobile terminal.

30 14. The method according to claim 13, wherein said step of transmitting authorization to said access point is performed using DIAMETER protocol.

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15. The method according to claim 10, further comprising the step, following said authentication by said server, of reporting to said mobile terminal the success of said authentication.

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16. The method according to claim 10, wherein said step of closing said EAP/EAPOL path is performed before said control data signaling connection tunnel is opened.

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17. The method according to claim 10, wherein said step of closing said EAP/EAPOL path is performed concurrently with opening of said control data signaling connection tunnel.

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18. A method for operating a client terminal to establish a control connection to a communications network, said method comprising the steps of:

from said client terminal, establishing an authentication connection between said client terminal and said communications network, and requesting authentication;

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at said client terminal, receiving an authentication message from said communication network, said authentication message including set-up parameters defining a control data signaling connection tunnel between said client terminal and said communications network;

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from said client terminal, setting up said control data signaling connection tunnel by use of said set-up parameters;

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transmitting control information between said client terminal and said communications network via said control data signaling connection tunnel; and

closing said authentication connection.

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19. The method according to claim 18, wherein said step of closing said authentication connection is performed after said step of transmitting control information between said client terminal and said communications network via said control data signaling connection tunnel.

20. The method according to claim 18, wherein said steps of (a) establishing an authentication connection and (b) transmitting control information are performed by way of a wireless access point.

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